PHENIX

Technical Support 2008

PHENIX
WEEKLY PLANNING

2/7/2008

Don Lynch

Run 8 Task Schedule

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Item	Start	Finish
RPC support	On Going	On Going
Next scheduled Maint. Day?	2/13	2/13
CM Crane design review	2/1	2/28
Lab Holiday (Presidents Day)	2/18	2/18
Scheduled Maint. Day	2/27	2/27
Mu Trigger FEE Prototype II install	2/27	2/27
Complete new beampipe design	2/29	2/29
End PP run	3/12	3/12
500 GeV Run	3/13	3/14
End of Run 8	3/15	5/27
Install new UPS	~3/15	~3/31
End of Run Party	4/4	4/4
Install Gas house UPS's	4/15	6/13
Install HBD	7/15	9/15

Next Maintenance Access Day: Feb. 13th

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- Field fit CM access ladder hardware
- MuTrigger FEE Prototype II test walkdown (crawldown?)
  (Permit at C-A)
- Other tasks - ?

CM Ladder/Stair Shutdown Access

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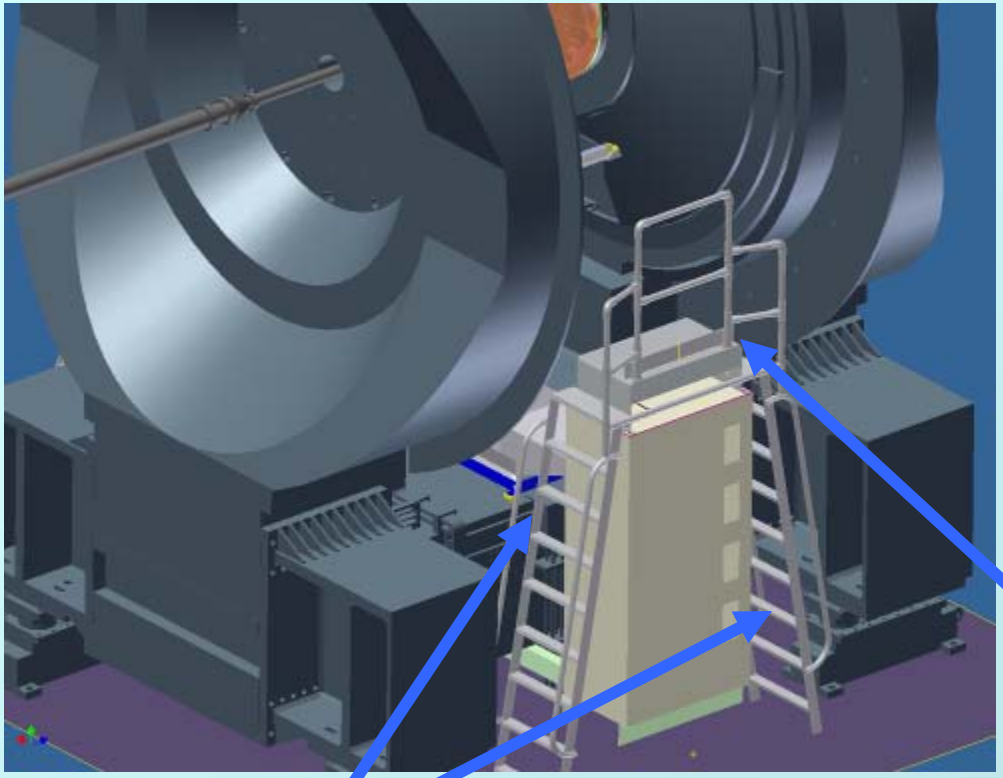

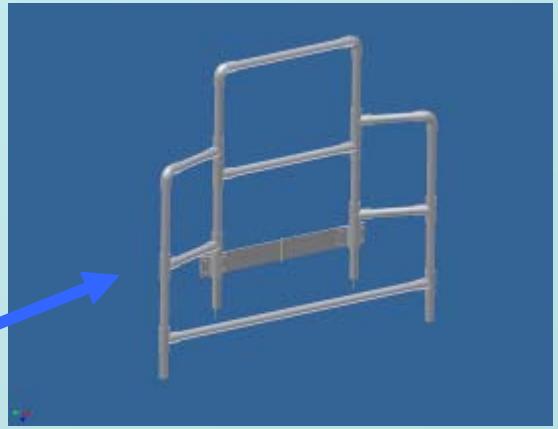

Ladders done

Railing to be ready for next access

2008 PHENIX Shutdown Prep

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February-March 2008:

- Run 8 technical support
- RPC factory support
- new beam pipe design completion and review
- CM Crane design review and purchase placement
- Muon Trigger FEE prototype test II
- MMN station 1 & 2 scaffolding design and safety review
- Muon Trigger Rack platform design and review
- RPC3 installation review preparation (support structure, transport and installation fixture design, tunnel vapor barrier modification design, gas mixing and distribution system and piping design).
- VTX, FVTX & NCC technical support

RPC Factory Support, cont.

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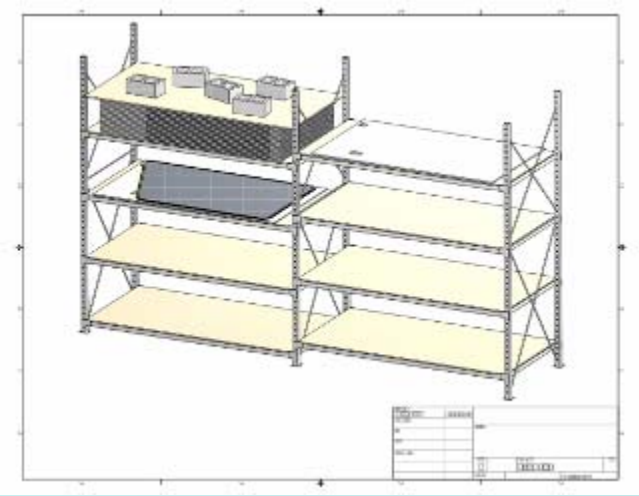
Tent Preparation – Done Approval to flow gas received!!

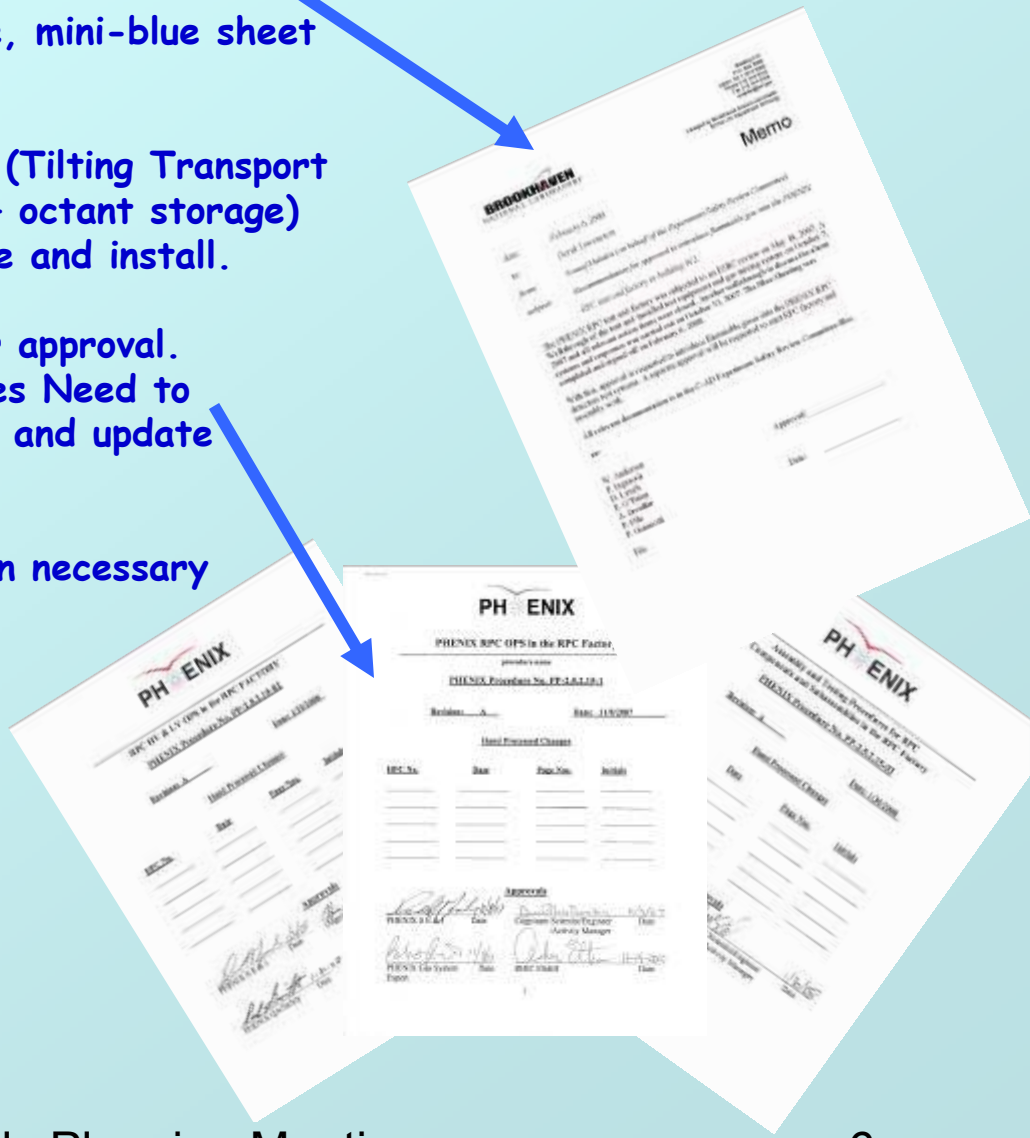
Safety systems – Installation complete, mini-blue sheet done

Equipment Issues – Need specs for 3T (Tilting Transport Table) and GMHOS (gap, module and ½ octant storage) racks, then need to fabricate assemble and install.

Work plan – Revised and submitted for approval. Includes 4 new PHENIX/RPC procedures Need to develop detailed production procedures and update workplan as necessary.

Security – Comply with C-A policy when necessary





RPC Factory Issues, cont.

Area to the west of RPC factory is now re-posted and cordoned with yellow tape as a controlled area. A corridor has been left to access the bathroom. Any activities which will need to traverse the posted area (e.g. delivery of materials, equipment etc. through the roll up doors) will require a work permit

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RPC & Mu Trigger FEE Detailed Schedule.

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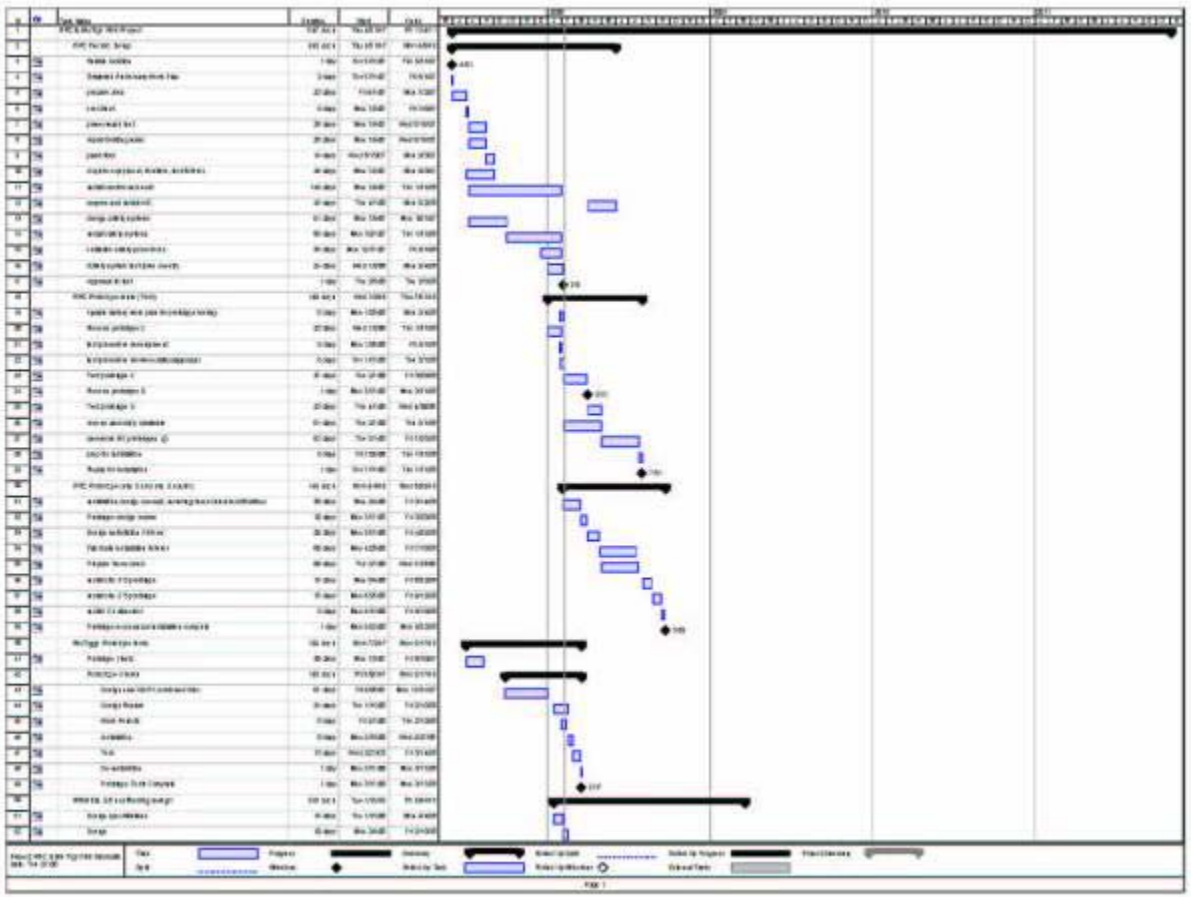

In progress, details next week

33 Major subtasks

227 detailed tasks/milestones

New Beampipe Design & Review

Current beampipe IR region:
3 inch (76.2 mm) OD Be section,
.04" (1 mm) wall thickness
55" (1400 mm) long

Proposed beampipe IR region:
1.61 inch (41.0 mm) OD Be section,
.02" (0.5 mm) wall thickness
31.5" (800 mm) long

Design to be ready for final review by 2/29/08

Procurement March 08

Ready for installation March 09

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New Beampipe Design & Review

New Beampipe Design & Review

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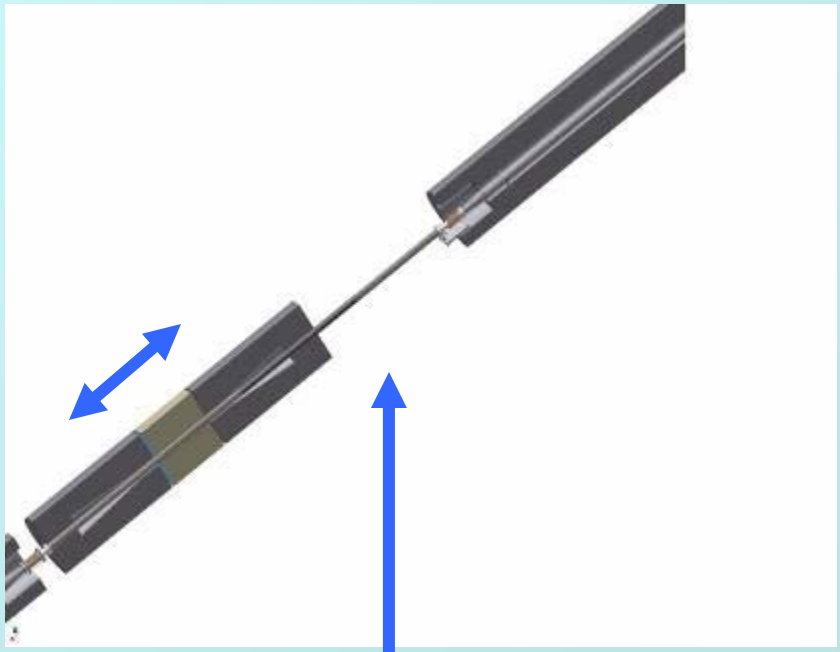
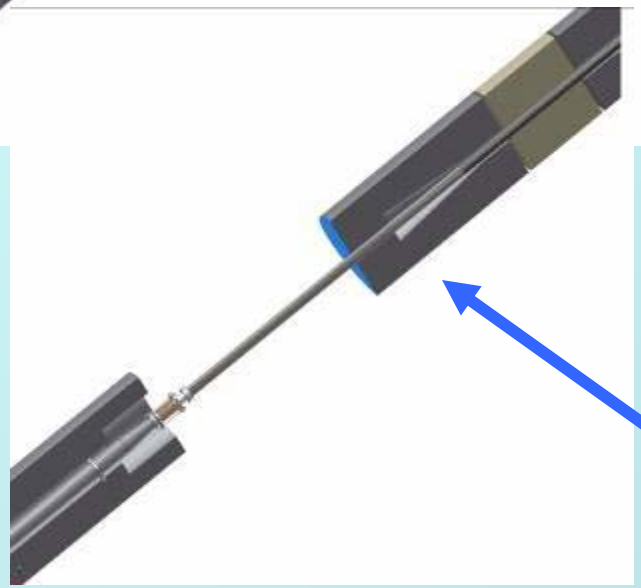
Run Configuration

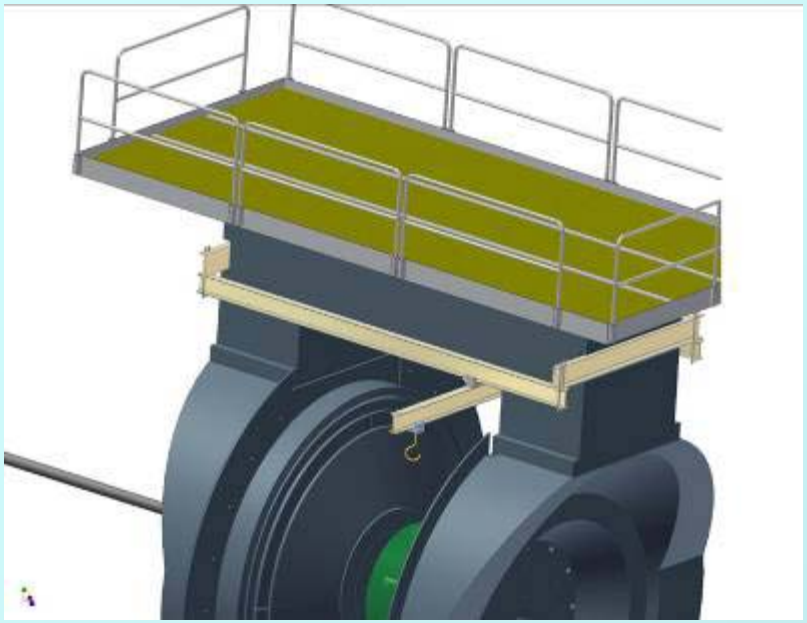


North Station 1 open
(MMS & CM moved South)



South Station 1 open (MMS moved South, CM in run position)

CM Crane



- Uses Gorbel 1-ton capacity Ceiling mounted Bridge Crane, modified to be supported by 2 Steel Channels attached to CM
- Bridge and hoist to be removed for running.
- Crane Design ready for review


PHENIX Relativistic Heavy Ion Collider (RHIC) PHENIX Experiment

BROOKHAVEN NATIONAL LABORATORY

ENGINEERING CALCULATION

TITLE: Central Magnet Bridge Crane

PREPARED BY: Don Lynch, P.E.

CHECKED BY:

Introduction

The PHENIX IR overhead Crane had been utilized for moving equipment and detectors too heavy or unwieldy to be moved by hand in all areas of the IR. The recent addition of the "bridge" platform above the Central Magnet ("CM") limits the overhead crane's utility in the CM region. This analysis note describes the design and analyses for a more conveniently located bridge crane to service the CM region of the PHENIX detector.

The bridge crane itself does not require a structural analysis, as it is a commercial stock bridge crane, 1 ton capacity, GORBEL, Inc. model G1CS. This is a catalog item and will be ordered with a certificate of conformance.

Analyses described herein are as follows:

1. Dimensional analysis to demonstrate that the apparatus does not interfere with any existing features of the PHENIX detector and/or IR equipment.
2. Structural analyses of the support channels.
3. Stability analyses of the CM under most extreme crane loading scenarios.
4. Installation analysis to demonstrate compliance of installation methodology with BNL equipment and personnel safety requirements and conformance to "best practices" philosophy.

Current PHENIX plans call for installation of the CM crane in late spring 2008.

Waiting for design review.

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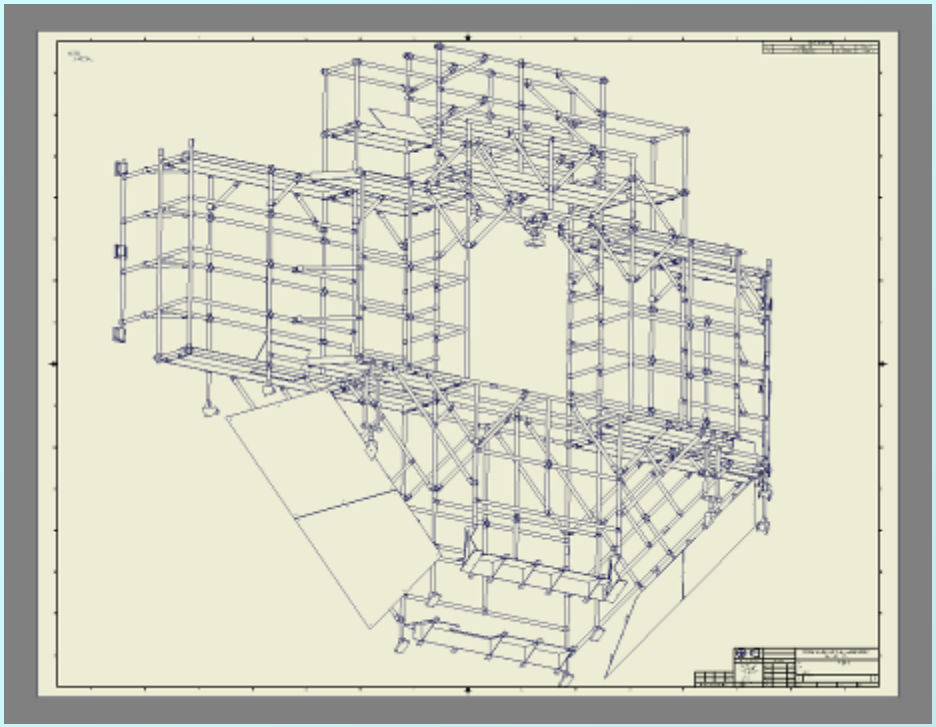
MMN Scaffolding



Existing MMN MuTr scaffolding is being redesigned to be assemble-able with only one lampshade removed and access to all station 2&3 FEE's from lower hatch.

Additional scaffolding to be designed to access all Station 1 North FEE's and lampshade sites adjacent to station 1.

Station 1 North scaffolding to be useable for Station 1 South with minimal modification.

Station 2 & 3 South scaffolding to be addressed later

MMN Scaffolding

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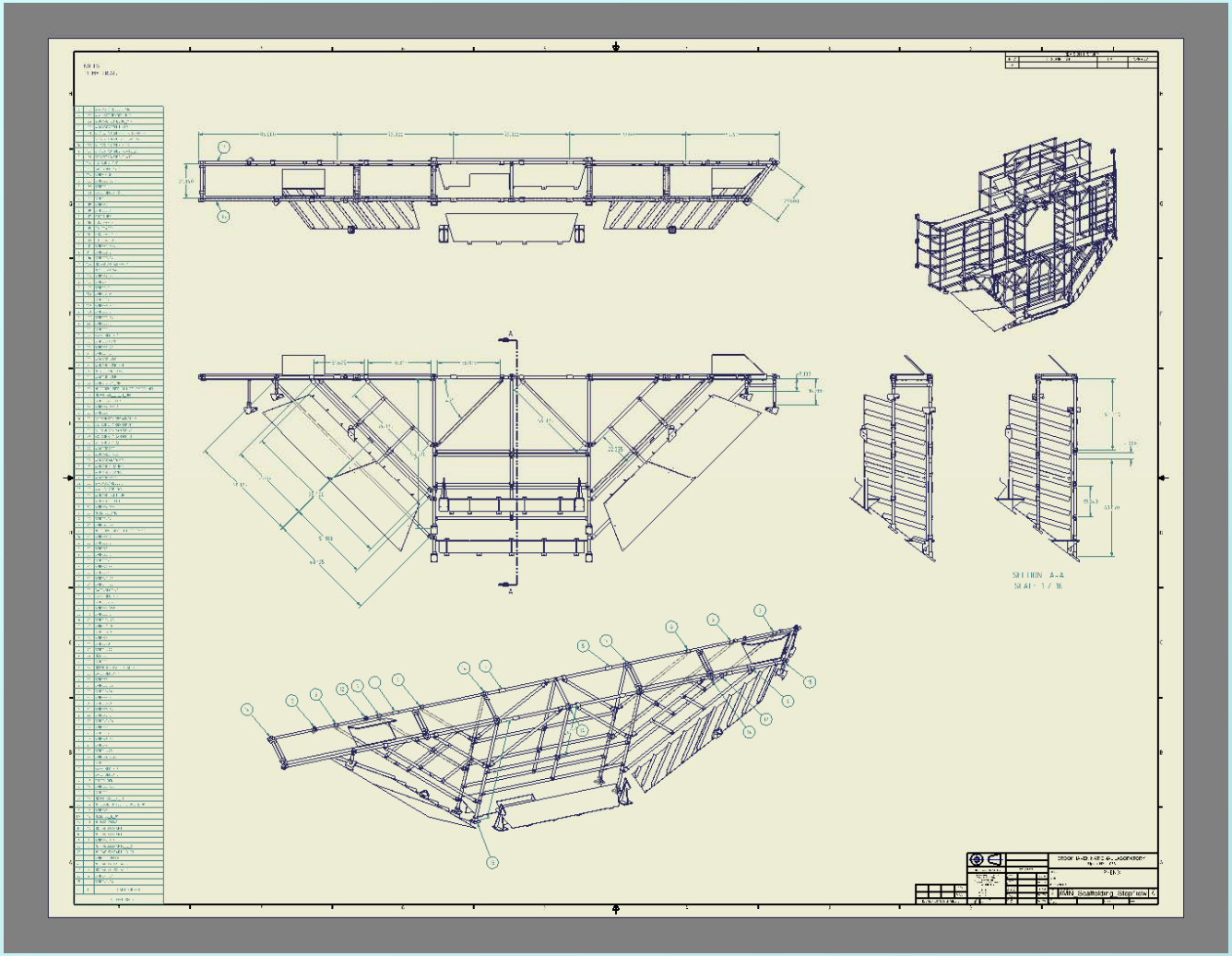

Scaffold to be erected in 5 steps. Each step will have a detailed design drawwing and BOM.

Ready for design review by 2/15

Station 1 scaffolding is next.

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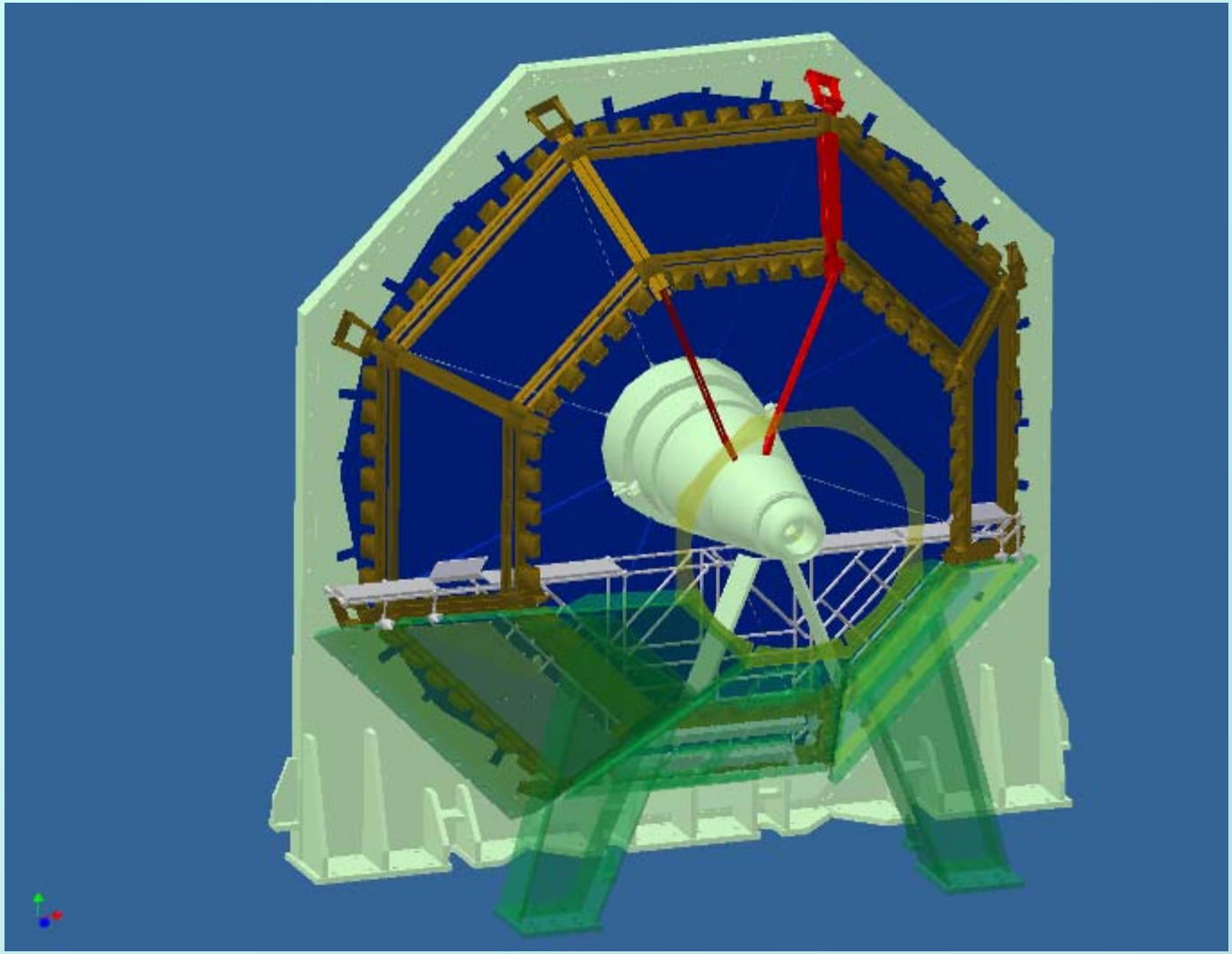
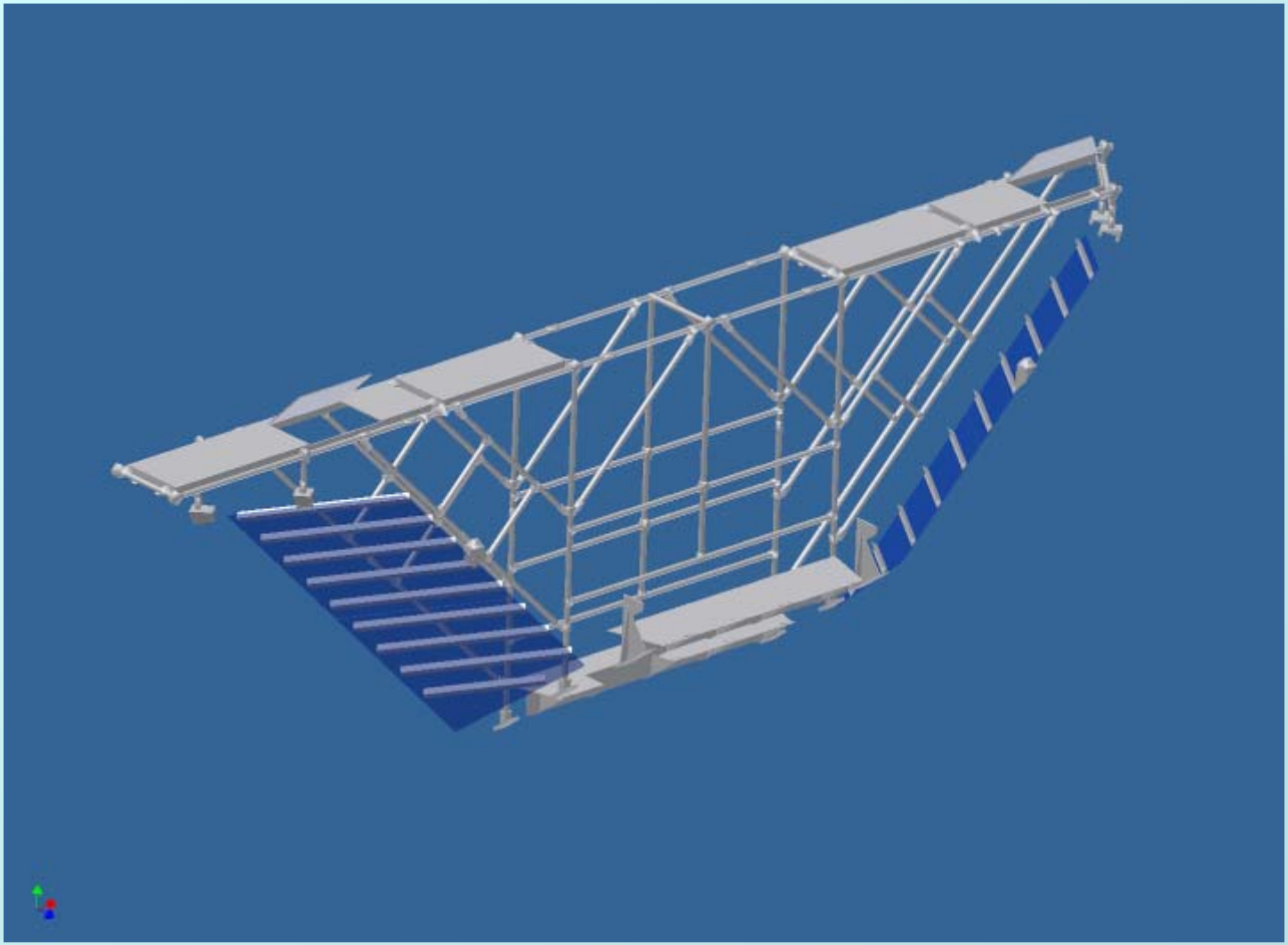
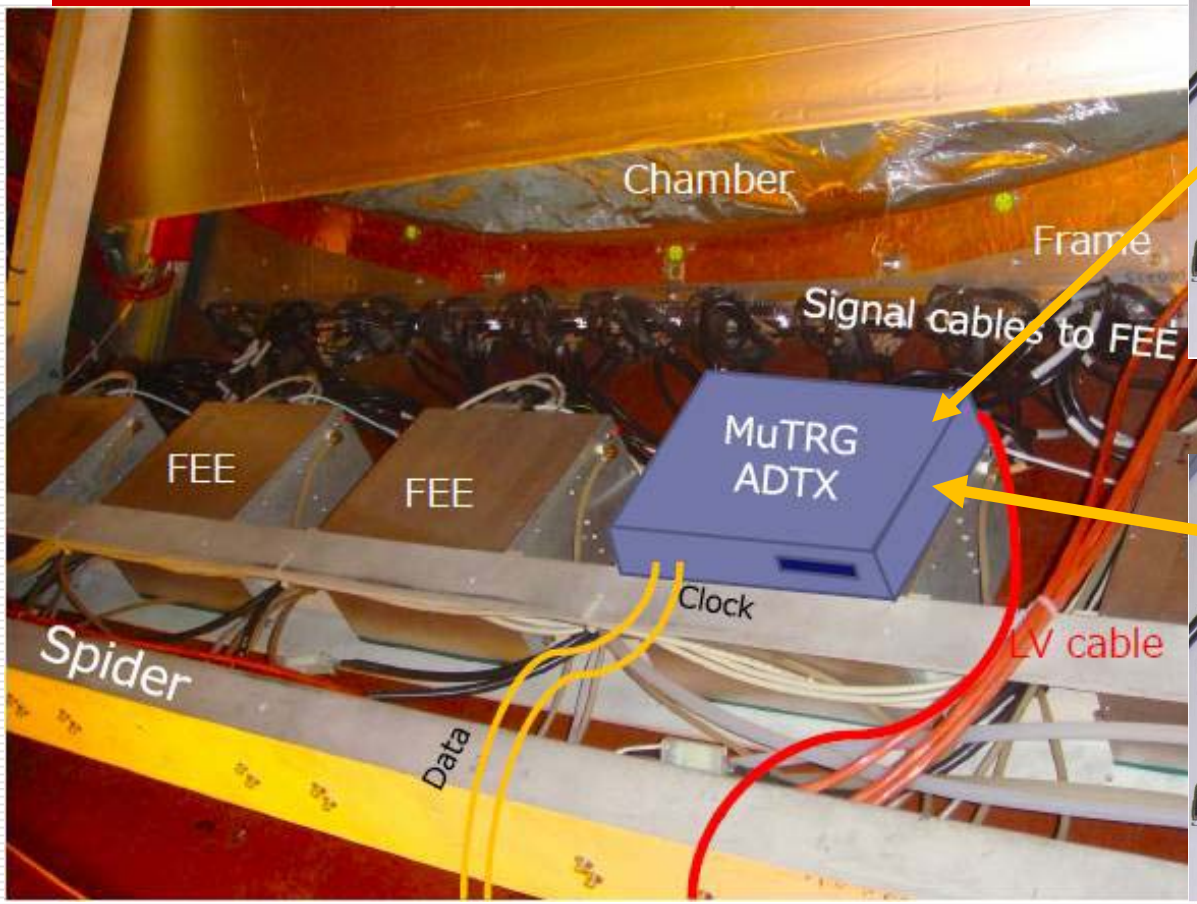
MMN Scaffolding installation steps

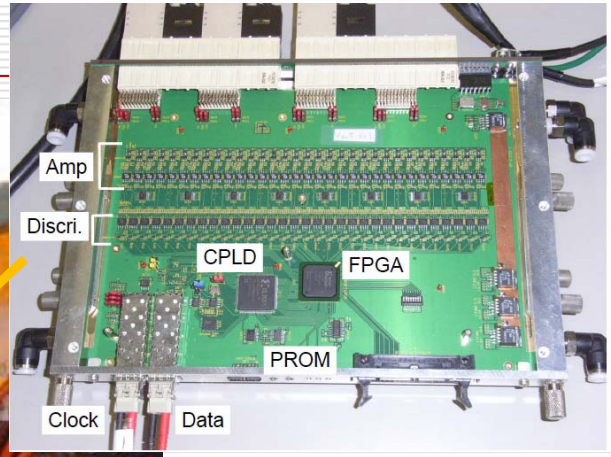


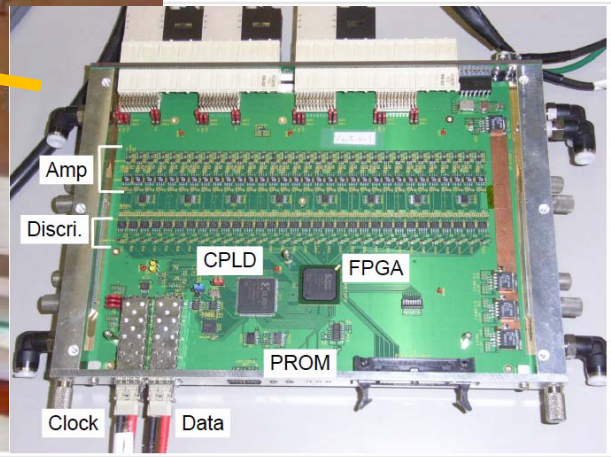
MMN Scaffolding installation steps



MuTr North, Station-2, Octant 7(bottom) Same Setup as Summer

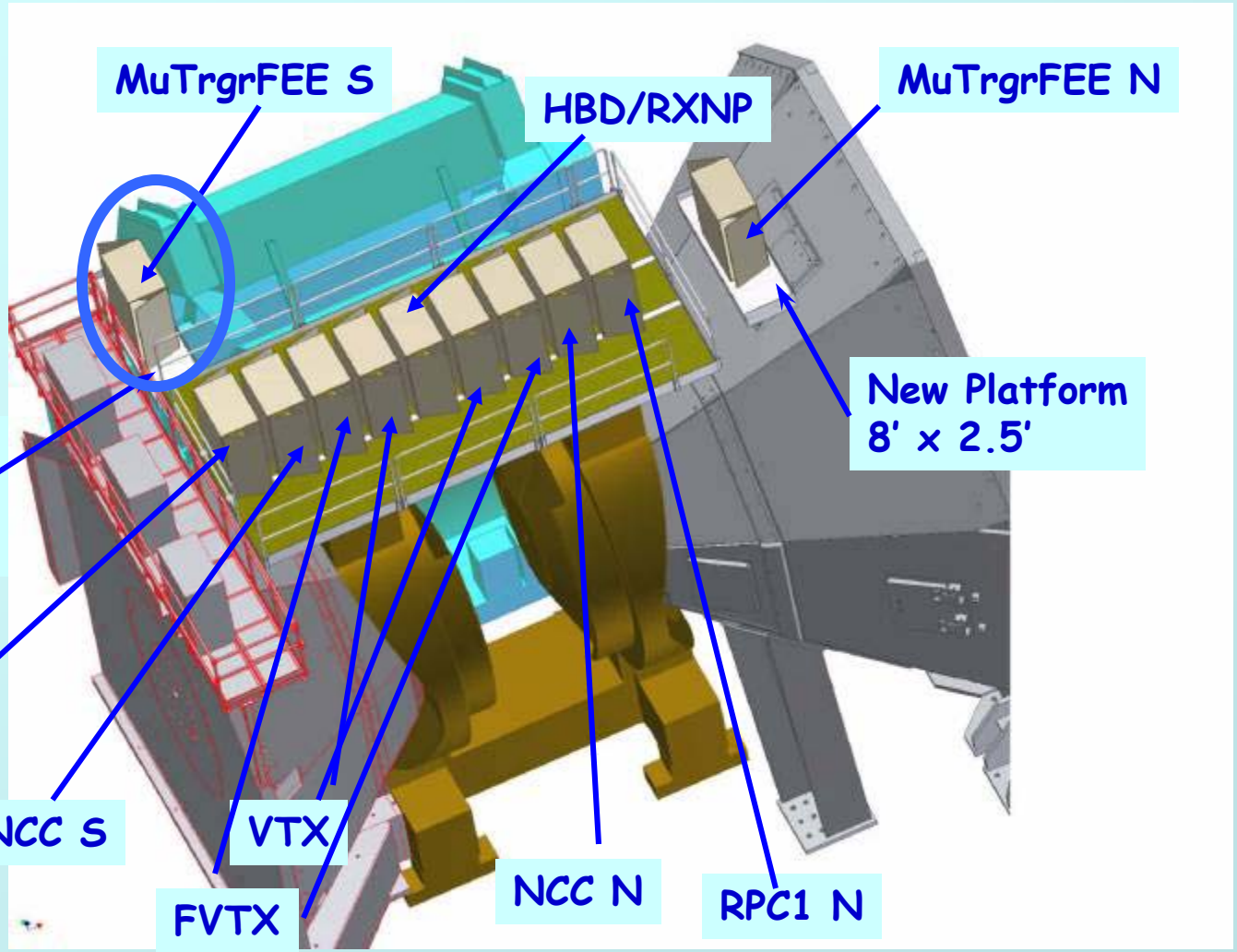






1 Chassis -> 2 ADTX boards

Muon Trigger Rack Platforms



Design Reviews

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- Mu Trigger FEE Prototype (Informal, currently in process)
- CM Crane (analyses complete)
- MMN Scaffolding 2/19-2/22
- Station 1 Scaffolding 3/3 – 3/7
- RPC Prototype 3/17-3/28 (Prototype design, installation, gas system, electronics, safety)
- Mu Trigger FEE N & S 3/17-3/28
- MuTrigger N & S rack platform 4/21-5/2
- RPC Stations 1, 2 and 3 6/22-6/20
- MMS scaffolding 2/2/09-2/6/09

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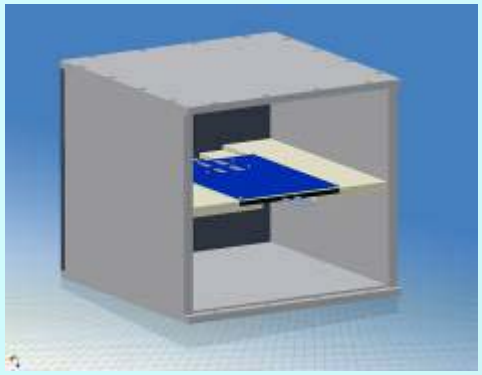
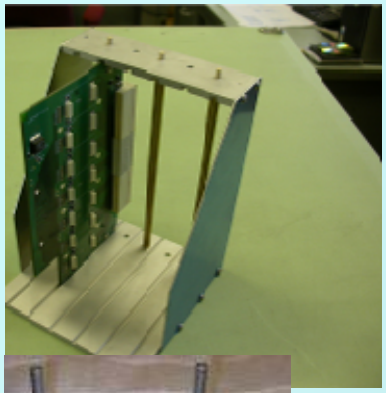
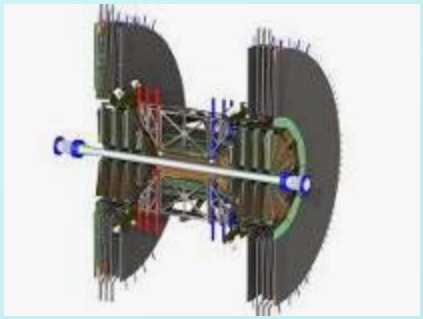
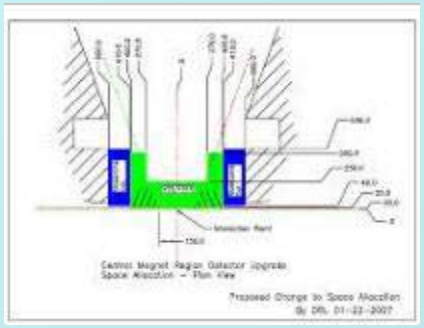
Other Work









- VTX, FVTX and NCC prototype support
  - Integration
  - Physical and Rack space
  - Infrastructure upgrades
- New Counting House Door
- VTX Prototype for run 8 ?

Safety, Security, Etc. :

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Training - good efforts to get up to date. I will update the requirements list next week

Procedures – I will put procedures used in shutdowns on line next week on the engg web site. Look them over the next few weeks to refresh your memory on the various tasks.

Winter is not over yet. Cold & snow coming next week?

Other Issues?

2008 PHENIX Shutdown

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March 2008: Complete Run 8 &MUTrigger FEE Prototype tests, Purge flammable gas, open shield wall.RPC prototype C tests, RPC prototype & Mu Trgr FEE review

April 2008: Disassemble Shield wall, remove collars, disconnect EC & move to AH, set up IR for shutdown. Test assembly of MMN scaffolding (in AH). Install CM access stairs. Prep EC for Shutdown requirements. RPC Installation Fixtures. RPC prototype D tests, MMN & Sta. 1 scaffolding ready, MuTrgr platform reviews,

May 2008: Install CM Crane. Remove N lampshades. MuTr decapacitations in station1 south. Prep work for MuTrgr electronics platforms north & south. Prep work for RPC prototype installation, begin RPC tunnel area prep, erect MMN & Sta 1 scaffolds

June 2008: MuTr decaps, station 1 S & N, PC1 repairs, Inst. station2/3 N scaffolding. RPC tunnel area prep. RPC Design & safety review,

July 2008: Re-Install HBD, RPC prototype gas system, Move shielding for RPC installation, RPC prototype cable routing and support, modify crystal palace and tunnel vapor barrier, fabricate RPC installation fixtures,install MuTrggr N, TBD subsystem maintenance, install MuTrgr N platform

August 2008: Install RPC prototypes, install Mu Trigger FEE's in MMS and MMN, Install N&S rack support platforms for Mu Trigger FEE's. Install MMN cooling water and air supply for MMN. TBD prototype tests, TBD infrastructure work

September 2008: Replace tunnel shielding, connect electronics, gas, water and air as necessary for RPC and Mu Trigger FEE, install Mutrgr S platform, Install MuTrgr N&S racks

October 2008: Prepare for run, EC into IR, install collars, build shield wall, etc.

November 2007: blue sheets, white sheets, close wall, start shifts, flam. Gas, physics

5 Year Plan

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2008	Install stations 1& 2 of MuTr FEE upgrades (north), 1 octant Cu absorber (S), 1 half otants each RPC2/3 S, MMN sta. 2 scaffolding, MuTr Sta 1 N&S scaffolding, 1 octant of MuTrigger FEE upgrades (south, sta 1 & 2), MuTr N stn. 1 & 3 decaps, MuTrigger rack platforms (N&S), CM crane, remove/replace beampipe, infrastructure upgrades & repairs, misc. subsystem work, 1 RPC rack in South tunnel, MuTrgr FEE N & S racks
2009	Remove HBD & RXNP, scaffolding in MMS, MuTr S stn. 1 & 3 decaps, RPC2 N, RPC3 N, north Cu absorbers, partial VTX, iFVTX, MuTrgr S sta 1 & 2, MuTrgr S rack, 2 racks in N tunnel, infrastructure upgrades & repairs, misc. subsystem work
2010	Remainder of VTX barrel, partial FVTX, south Cu absorber completed, MuTrgr FEE stn. 3 S, any remaining MuTr decaps, infrastructure upgrades & repairs, misc. subsystem work
2011	RPC1 N&S, NCC N, remainder of FVTX, DC West upgrade/repair, remove absorbers, infrastructure upgrades & repairs, misc. subsystem work
2012	NCC S, upgrades contingency & wishlist, infrastructure upgrades & repairs, misc. subsystem work, TBD new and improved upgrades

** Years refer to the shutdown year and follow the run with the similar number (i.e. work in 2008 is to be done in the shutdown that follows run 8, and so on)*

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Where To Find PHENIX Technical Info

Links for the weekly planning meeting slides, long term planning, pictures, videos and other technical info can be found on the web site:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm